The Art of Engineering in Cobalt™



Troy Gleeson has been using Ashlar-Vellum CAD and 3D modeling programs since the mid 90's, first with Vellum Solids™, and then with its successor, Cobalt™. Working in industries as diverse as aviation to Broadway theatre, each time, Cobalt has been his tool of choice. As he tells it: "I use Cobalt for everything. It's simply the most versatile package I've ever worked with, especially for geometry creation." He continues:

"I find, after having worked with Ashlar-Vellum products all these years, trying to design complex geometry in any other program is like trying to do surgery without a scalpel, and the ability to generate, what is in parametric terms, an 'assembly' of many interlocking parts, on the fly and in one file, invaluable."

A man of wide-ranging interests and many projects, Gleeson loves Cobalt's flexibility because it bridges the gap between art and engineering and works well in conjunction with other programs. Cobalt's Organic Workflow™ fits seamlessly into his design process, offering not only 3D modeling but also functions for art and engineering. For him, Cobalt has been a drawing program for creating technical illustrations, a modeler for creating 3D geometry from hand drawings, even a page layout system for a 400-page manual. He's used it in conjunction with Photoshop and also with SolidWorks for assemblies and finite element analysis.

Using Cobalt, Gleeson can maintain flexibility while designing the complex surfaces of the optionally-manned composite aerial drones for Berkut Engineering & Design. Even under stressful conditions on the shop floor he can have a part ready for machining in less than half an hour.

Gleeson especially likes Cobalt's parametrics because they're on-demand. Unlike exclusively parametric modelers, such as SolidWorks and Pro/E, Cobalt gives Gleeson the ability to use parametrics only when he wants them and break those links when he doesn't. He likes this for two reasons:

- It reduces the complexity of the file, not only making it smaller in size, but also eliminating the interlinking relationships that are no longer required.
- It enables him to move a part without moving all of the creation geometry associated with it.

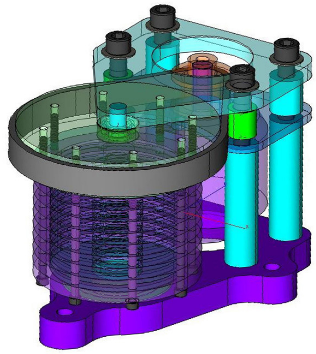
Finally, he likes Cobalt particularly because it has modeling tools that are not available in any other 3D modeling package.

He puts it simply:

"Cobalt is just superior in terms of creating all this geometry. It's no where near as cryptic. It has better solid tools. It's got better surface tools. It's got better drawing tools. It's just got more, better tools."



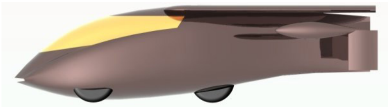
This portable Elizabethan theatre packs in flat pieces like an exhibit and can be used anywhere, indoors or out.



Gleeson designed this fluid-dampened servo mechanism for a camera crane with a clutch pack that applies torque without requiring a large gear train.



This fluid-dampened, three-axis tripod for tactical shooting came out of technology that Gleeson originally developed for cameras cranes in the motion picture industry.



Gleeson's concept for the Griphon flying car.

Background/Contact

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